

**REMARKS**

Reconsideration and allowance of the above-referenced application are respectfully requested.

**I. STATUS OF THE CLAIMS**

None of the claims are amended herein.

Claims 3-5 and 9-11 are allowed.

In view of the above, it is respectfully submitted that claims 1-11 are currently pending and under consideration.

**II. REJECTION OF CLAIMS 1, 2, AND 6-8 UNDER 35 U.S.C. §103(A) AS BEING UNPATENTABLE OVER GUK (KR PUB. NO. '8868) IN VIEW OF NEWMAN, JR. ET AL. (USP# 6,380,692)**

The present invention as recited in claim 1 relates to "a heater lamp control...comprising: an AC voltage phase detection unit to detect a phase of the inputted AC voltage when a magnitude of the inputted AC voltage is over a predetermined level; a pulse signal generation unit to generate a heater lamp control pulse signal based on a result of the detection; and a control unit to control a drive- timing of the heater lamp based on the generated heater lamp control pulse signal."

Guk teaches a device for using rated voltage in common of fusing unit. The Examiner asserts, Guk "teaches that is conventional to detect voltage magnitude and vary the duty cycle to the heater in response to this detection, to effect uniform power control."

However, Guk does not teach or suggest "an AC voltage phase detection unit to detect a phase of the inputted AC voltage when a magnitude of the inputted AC voltage is over a predetermined level," "a pulse signal generation unit to generate a heater lamp control pulse signal based on a result of the detection," and "a control unit to control a drive- timing of the heater lamp based on the generated heater lamp control pulse signal" (see claim 1 of the claimed invention).

Newman teaches a phase controlled dimming system with an active filter for preventing flickering and undesired intensity changes. The Examiner asserts that Newman is applied for teaching that "it is conventional to use phase control to compensate for input voltage conditions such as voltage and frequency variation. The Examiner also directs Applicants' attention to column 8, line 56 to column 9, line 27 of Newman. Here, Newman discloses the following:

The information about the zero crosses is used by the microprocessor 26 to determine the half period of the AC

fundamental 62, which will be used in order to properly gate the thyristor. The microprocessor is programmed to attempt to maintain constant duty cycle. Constant duty cycle means that even if the AC line frequency changes (which will change the time between zero crosses), the amount of power output to the load will be held constant. In order to maintain constant power while the AC line frequency is changing, the amount of time after the zero cross that the thyristor is to be fired must be adjusted. If the AC line frequency increases, e.g., if the frequency changes from 50 Hz to 50.1 Hz, the time between zero crosses decreases and the amount of time after the zero cross that the thyristor is to be fired must be decreased in order to keep the output power constant. The opposite happens when the frequency decreases. Constant duty cycle is explained in more detail below in relation to FIG. 12.

Preferably, the filter 30 is designed to remove or substantially attenuate frequency components of the AC line voltage waveform that are substantially equal to third harmonics and greater of the AC fundamental. Second order harmonics are not an issue on the AC line, and any noise and distortion components are likely to be in a frequency range greater than the second harmonic frequency. Though an ideal filter would provide no phase delay, practical filter implementations always interpose some phase delay. In the preferred embodiment of the filter 30 of the present invention, the phase delay should not be more than half the period of the fundamental frequency (i.e. less than 180.degree.) to ensure proper dimming function. In a 60 Hz line, conduction angles of 135.degree. or more, which translates to about 1-3 nmsec of conduction time of the thyristor, represents the dimming range where noise, distortion, etc. are most likely to be manifested as flickering and intensity variations. Therefore, from a practical standpoint, the phase delay should be no greater than about 135.degree. to provide adequate time (within each half cycle of the AC line) for the microprocessor to compute a conduction angle and fire the thyristor well within this range of the half cycle.

According to the above, Newman fails to teach or suggest "an AC voltage phase detection unit to detect a phase of the inputted AC voltage when a magnitude of the inputted AC voltage is over a predetermined level," "a pulse signal generation unit to generate a heater lamp control pulse signal based on a result of the detection," and "a control unit to control a drive-timing of the heater lamp based on the generated heater lamp control pulse signal" (see claim 1 of the claimed invention). Thus, it is respectfully submitted that Guk and Newman, either alone or in combination, do not teach or suggest the features as recited in claim 1 of the present claimed invention.

Further, MPEP § 2142 states that "[w]hen the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the examiner to explain why the combination of the teachings is proper." The Examiner is required to present actual evidence and make particular findings related to the motivation to combine the teachings of the references. In re Kotzab, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); In re Dembiczak, 50

USPQ2d 1614, 1617 (Fed. Cir. 1999). Broad conclusory statements regarding the teaching of multiple references, standing alone, are not “evidence.” Dembiczak, 50 USPQ2d at 1617. “The factual inquiry whether to combine the references must be thorough and searching.” In re Lee, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002) (citing McGinley v. Franklin Sports, Inc., 60 USPQ2d 1001, 1008 (Fed. Cir. 2001)). The factual inquiry must be based on objective evidence of record, and cannot be based on subjective belief and unknown authority. Id. at 1433-34. The Examiner must explain the reasons that one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious. In re Rouffet, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998).

The Examiner has not presented any evidence why Guk and Newman would have been combined. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. MPEP § 2143.01. Specifically, there must be a suggestion or motivation in the references to make the combination or modification. Id. The Examiner’s sole support for such a combination is that “it would have been obvious to modify [Guk] to vary the duty ratio using phase control in lieu of unspecified control, since use of the same is conventional as set forth in Newman, Jr. and would lead to more uniform power output from the heating element.” The Examiner cannot rely on the benefit of the combination without first supporting the motivation to make the combination. Such motivation does not appear anywhere in any of the cited references, and the Examiner has not presented any actual evidence in support of the same. Instead, the Examiner relies on broad conclusory statements, subjective belief, and unknown authority. Such a basis does not adequately support the combination of references. Therefore, the combination is improper and must be withdrawn.

Similar to claim 1, claim 7 recites, “a heater lamp control method...comprising: detecting a phase of the inputted AC voltage when a magnitude of the inputted AC voltage is over a predetermined level; generating a heater lamp control pulse signal based on a result of the detection; and controlling a drive- timing of the heater lamp based on the generated heater lamp control pulse signal.” Accordingly, Guk and Newman, either alone or in combination, do not teach or suggest the features as recited in claim 7.

Dependent claims 2 and 6 (depending from claim 1) and dependent claim 8 (depending from claim 7) recite patentably distinguishing features of their own, and further, are at least patentably distinguishing due to their dependencies from independent claims 1 and 7. For example, claim 2 recites, “wherein the pulse signal generation unit generates a pulse reference signal based on a result of the detection, a phase-delayed pulse delay signal based on the pulse reference signal, and the heater lamp control pulse signal based on a result of a comparison of

magnitudes of the pulse reference signal and the pulse delay signal." Regarding claim 2, the Examiner again relies on broad conclusory statements and asserts, "it is considered an obvious choice in design for the artisan to vary the reference signal is response to the detection scheme, the same being common in control systems." It is submitted, however, the none of the cited prior art teaches or suggests the features recited in claim 2 of the present invention and that claim 2 patentably distinguishes over the cited prior art.

In view of the above, it is respectfully submitted that the rejection is overcome.

### III. CONCLUSION

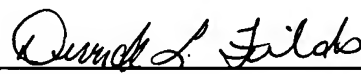
In view of the foregoing remarks, it is respectfully submitted that each of the claims patentably distinguishes over the prior art, and therefore defines allowable subject matter. A prompt and favorable reconsideration of the rejection along with an indication of allowability of all pending claims are therefore respectfully requested.

If there are any additional fees associated with filing of this Response, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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